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WASHINGTON LETTER.

WASHINGTON, March 25, 1893.

NAUTICAL SURPRISES.—The most reliable statistics show an average annual total loss by wreckage of 2172 vessels, with 12,000 lives, in the commerce of the world. The estimated value of the vessels and cargoes lost is about one hundred million dollars. These statements are to most people as surprising as another one attributed to General Dumont, of the U. S. Steamboat Inspection Service; viz., that the sailing vessels of the world carried a larger number of passengers, and at smaller loss, than the steam vessels.

On a *Wreck Chart of the North Atlantic Coast of America*, recently issued by the U. S. Hydrographic Office, are graphically shown for the period of five years, from 1887 to 1891, the localities where 956 vessels were wrecked, together with the positions of 332 abandoned vessels, of which 139 were frequently reported, and have their drift tracks plotted as far as the limits of the chart permit. The tangled tracks lie mostly between 30° and 40° N. Latitude, and, as might be expected, largely in the track of ocean steamers. They are interesting as showing the extremely erratic courses of these dangerous obstructions. The trend is eastward, but the gyrations approximating the American coast are towards every point of the compass. In addition to the 332 abandoned vessels, the *Monthly Pilot*

Charts and *Weekly Bulletins* show that there were in this same region and period 625 derelicts which could not be identified. One derelict drifted 310 miles in five thousand nine hundred and ten days. and was reported forty-five times. Another drifted 615 miles in about the same time, and was reported thirty-four times. There were thirty-eight collisions with the derelicts; an average of nearly eight every year. The unidentified include all vessels floating bottom up, floating hulks without masts, and abandoned vessels with masts standing. The largest numbers were reported in the months of October and November, and these trebled in five years. But this apparent heavy increase may have been the result of better methods in gathering the information. It will be observed that the 625 unknown with the 332 known derelicts make a total of 957 during five years, or an average of sixteen for each month. It is estimated that the average time a derelict remains afloat is about thirty days. But this is probably an underestimate, because many such are undoubtedly not reported, or not seen. The *Pilot Chart* for February, 1893, shows 45 afloat in the North Atlantic, 25 of which were in the vicinity of the tracks of the transatlantic steamers.

Derelicts in the North Atlantic mainly originate on the coast of the United States, the most prolific sources being the regions adjacent to Maine, Massachusetts, Delaware, Maryland and North Carolina. The International Marine Conference which met in Washington in 1889 discussed the danger of derelicts to life and property, and the unanimous report of the United States delegates was:

"It is earnestly recommended that a steam vessel of about 800 tons displacement be built, which shall be especially fitted for and adapted to the service of taking the ocean in bad weather, for the purpose of blowing up or otherwise destroying wrecks and derelicts, or bringing them into port; such vessel to be built under the direction of and attached to the Navy Department, and that particular attention be paid to her strength, and to the strength, size, and character of her boats, owing to the fact that such vessels are required principally just after a storm, when the seas are still running high and when no ordinary boat could take the sea. Special design in the hull is required on account of being subject to rough weather and heavy seas, and on account of having frequently to tow vessels submerged. For this latter reason extra fittings for towing should be added."

Millions upon millions have been expended on the "new navy," but the appropriation of the comparatively very small sum that would be required to give vivification to the humane suggestions of the Marine Conference, and perhaps be the means of *saving* (not destroying) lives and millions worth of property, has not yet been found among the Acts of Congress. In one or two instances a government vessel has been detailed to destroy a dangerous wreck.

The Hydrographer is charting a Gibraltar steamship route. The route which this office mapped out and recommended as the great sailing route to the continent of Europe is now followed by all the great steamships. Corresponding results are expected when the Gibraltar route is formulated. The Hydrographer has received and is still receiving many valuable reports from masters of vessels and others who have been cruising along these proposed routes in view of their definite adoption. The eastern route, which is nearly a direct line from Boston or New York to Gibraltar, is favorably indorsed by all. Going westward, the high powered steamers generally prefer the northern great circle route. The medium-powered steamers prefer a southern route west, that is, a direct line to lat. 34° 30′ N., long. 65° W.; thence north-westerly. Others advise a route more southerly—to Madeira, to Bermuda, to the United States port.

The path of the total eclipse of the sun, April 16, is graphically shown in the *Pilot Chart* for March. The Marine Meteorologist, Mr. Everett Hayden, says this great astronomical event has certain features of special interest to the science of marine meteorology, and earnestly requests masters of vessels and observers who may be within the limits of the visibility of this eclipse to make reports of their observations. Scientific expeditions have been prepared to observe this eclipse, which is visible to South America, the larger part of Africa, Southern Europe, and intermediate Atlantic Ocean, being total along a line drawn through South America and across the Atlantic into the Sahara, Africa.

PRODUCTION AND DISTRIBUTION OF THE AGRICULTURAL PRODUCTS OF THE WORLD.—Mr. Dodge, the statistician of the Department of Agriculture, has been recently engaged in the collation of official statistics of all countries in the world relating to the production and distribution of the principal products of agriculture. It has been deemed a matter of supreme importance to collate, translate, coördinate and arrange the data of recent years, that some more definite idea of national supply and consumption could be obtained to relieve the confusion existing among agricultural and commercial writers on these points. Ninety-two countries are represented, and ten consecutive years; and never has there been so comprehensive and complete a collection as to extent of geographical area represented and continuity of annual statements.

As the work includes only official statistics, except incidentally in the brief analysis of results, its purpose is mainly to give comprehensiveness and lucidity to the disjointed and chaotic mass of such data. It aims to reduce to order and harmony the most valuable official statistics of agricultural exploitation, and confines within narrow limits the commercial quest for normal production of those countries which have no records of production, and few, if any, available facts of distribution. It is a long step in the progress of inquiry as to the actual supply and consumption of each individual country, revealing peculiarities of agricultural possibility, adaptations of climate and soil to the healthful growth of different plants, dietetic tastes and habits of different nations, and many adventitious conditions controlling the development of rural industries and the distribution of their products.

ELECTRICITY IN AGRICULTURE.—The Department of State in 1892 instituted an inquiry on the use of electricity in different parts of the world as a power in the propulsion of farm machinery and implements, and in the propagation of plants. It is not surprising that as far as known there are but four countries outside of the United States where experiments in this direction have been made, viz., England, Germany, France and Belgium.

Some interesting experiments on the effect of the electric light on the growth of plants were carried out by the late Sir William Siemens, at Sherwood, England. The apparatus consisted of

(1) A vertical dynamo machine.

(2) A regulator or lamp, constructed for continuous currents, with two carbon electrodes. The light was equal to 1400 candles.

(3) A 3-horse Otto gas-engine as motor.

The conclusions reached were as follows:

(1) That electric light is both efficacious in producing chlorophyll in the leaves of plants and in promoting growth.

(2) That a light centre equal to 1400 candles, placed at a distance of 6½ feet from growing plants, appears to be equal in effect to average daylight in February; but more economical effects can be attained by more powerful light centres.

(3) That plants do not appear to require a period of rest during the twenty-four hours of the day, but make increased and vigorous progress if subjected during day-time to sunlight and during the night to electric light.

(4) That the radiation of heat from powerful electric arcs can be made available to counteract the effect of night frost.

(5) That while under the influence of electric light, plants can sustain increased stove heat without collapsing, a circumstance favorable to forcing by electric light.

(6) That the light is efficacious in hastening the development of flowers and fruit. The flowers produced by its aid are remarkable for intense coloring, and the fruit both for bloom and aroma.

(7) That the expense of electro-horticulture depends mainly upon the cost of mechanical energy, and is very moderate when natural sources of such energy, as waterfalls, can be made available.

Some observations made by Dr. Schübeler of Christiania had already confirmed the conclusions that plants are able to grow continuously, and that when under the influence of continuous light they develop more brilliant flowers and larger and more aromatic fruit than when under the alternating influence of light and darkness.

In Germany, a marked increase in yield resulted from the use of copper and zinc plates connected through insulated wires with the positive and negative poles of a battery.

In Paris, two conservatories at the Paris exhibition were lighted by electricity. The gardener thought the plants and flowers thus lighted had a more lively air than those dependent upon gas or any other light than the sun or the moon. In consequence of this belief the electric lights were kept burning continually, and it is said that this perpetual light gave extra vigor to the plants, but that the expense was greater than the results obtained. Attempts have been made to pass electric currents in buckets where seeds were washed preparatory to sowing in order to destroy microbes invisible to the naked eye. It has been claimed that the germinating power of the seeds was thus increased.

In Belgium and in England electricity has been successfully employed as a motor for thrashing and dairy machines.

GEOLOGIC ATLAS OF THE UNITED STATES.—A definite plan of publication of the great geologic atlas of the United States, prepared under the direction of Major Powell, having been determined, the work of issue is going on with considerable vigor. Five atlases have appeared, each bearing the name of the most prominent locality in the area covered. They are, the Hawley (Mass.) sheet, the Chattanooga and Kingston (Tenn.) sheets, and the Sacramento and Lassen Peak (Cal.) sheets. Each atlas has a cover with an index map on the face showing the location of the district described on the geologic sheets. The cover holds eight sheets. The first is explanatory, that is to say, it contains a general explanation of the maps for the whole country, and will be repeated in all the atlases. The second has an outline of the geological history of the region of which the map makes a part. This sheet will also be repeated with maps of the same region. The third sheet presents a geographical and structural account of the immediate area included in the map. Then follow four colored maps, topographic, geologic, economic, structural. In some cases, when the economic resources are of such importance as to warrant it, a sheet of mineral resources will be added, showing the location of mines, quarries, coke-ovens, smelters and furnaces, as well as mineral areas.

Of course the basis of these geologic maps is the topographic sheets of the United States Geological Survey, covering an area of about 600,000 square miles, already described in these pages.

The following statement, by States and Territories, of the geological survey by the United States up to June 30, 1892, was prepared by W. J. M'Gee, and read at the October meeting of the American Institute of Mining Engineers.

States and Territories	No. of Sheets		Area Surveyed in Sq. Miles
	Wholly in State	Partly in State	
Alabama	2	2	5,500
Arizona	1*	—	14,000
California	7	—	14,875
Colorado	—*	—	2,150
Delaware	—	—	50
District of Columbia	—	2	70
Florida	2	—	850
Georgia	3	1	3.900
Iowa	3	—	700
Kansas	—*	—	100
Kentucky	—	1	100
Louisiana	6	—	1,500†
Maryland	13	6	5,000†
Massachusetts	21	2	5,500
Michigan	*	—	300
Montana	3	—	10,000
Nevada	*	—	25
New Jersey	2	—	500†
New Mexico	*	—	6,500
New York	—	2	300
North Carolina	—	2	500
Oregon	*	—	1,000
South Dakota	*	—	1,000
Tennessee	5	3	9.500
Texas	6	—	6,000
Utah	2*	—	9,000
Virginia	1	4	9,000
Washington	*	—	2,000
West Virginia	—	2	750
Wisconsin	4*	—	2,000
Wyoming (including Yellowstone National Park)	4	—	1,000

* Special sheets (*i. e.*, not coinciding with regular topographic atlas sheets) have been completed.

† Including water areas.

Besides the finished surveys and maps which are alone comprised in the statements and tables here given, the areas covered by reconnoissance, partly preliminary but largely detailed, is many times greater, extending into every State and Territory (including Alaska), representing all the natural classes and groups of rocks and covering one-fifth or more of the national domain. More than two-thirds of the geological field-work of the Bureau has yet to be mapped.—*Magee.*

Bureau of American Republics. It is gratifying to know that the bulletins of this Bureau, which are compiled from original information, without regard to previous publications on the same subjects, are recognized as official and accurate, and have been the cause of revisals of chapters concerning those countries in several of the popular encyclopedias and geographies. What have been considered standard publications in English have, in many cases, been found absolutely unreliable in their statements concerning the Central and South American countries. The demand for the bulletins by commercial organizations and applicants directly interested in commerce with the countries to which they refer has exceeded the supply. The general hand-book for 1893 is in press; also hand-book for Nicaragua, Bolivia and Ecuador. These, with those already issued,cover eight of the South American republics, and eight more are in preparation. That there is an increased desire among the merchants and manufacturers of the United States to participate in the trade of South America would seem to be demonstrated to a remarkable degree by the demand, not only from seaports, but from manufacturing towns, for the commercial directories, tariffs, and customs regulations of the several republics which this Bureau has had printed for gratuitous distribution.

The Bureau is rapidly accumulating a valuable library of statistical, geographical, commercial and general information that will be of great use to the public. Perhaps the best commentary on the value of the institution is the fact that similar bureaus have been established in England, France, Germany and Belgium in order to counteract as far as possible the influence of this agency.

The work of preparing the catalogue of commercial terms recommended by the International American Conference has been advanced. The English portion is in type. This catalogue will embody about 35,000 terms commonly used to describe articles of commerce between the United States and other American republics, with their equivalents in Spanish and Portuguese arranged alphabetically. Many of the terms do not appear in any Spanish or Portuguese dictionary. The expense of this publication being too great to justify free distribution except to customs, consular officials and public libraries, the public printer is authorized to sell the work at a price covering the cost of publication.

The exports from the United States to South America, including Mexico, last year showed an increase of 85 per cent, since 1885, when the endeavor to extend our trade southward began. The increase of postal communication with these countries by sea since 1889 has been very marked, in many cases from fifty to seventy-five per cent.

All the American republics, with possibly one exception, and most of the colonies will be represented by a full display at the Chicago Exposition. The appropriations exceed $2,000,000; and it will be the first time in history that they have all been assembled at any Exposition.

PUBLICATION OF THE CENSUS.— According to the latest regulations the reports of the eleventh census (1890) will consist of

Digest of leading statistics. 8°.
Compendium. 8°.
Population. 4°.
Manufactures.
Agriculture.
Wealth, debt and taxation.
Farms, homes and mortgages.
Mineral resources.
Transportation.
Insurance.
Vital statistics.
Statistics of special classes.
Fish and fisheries.
Educational and Church statistics.
Pauperism and crime.
Social statistics.
Alaska.
Indians.
Atlas.

Of these, the volume on Mineral Resources, and the first volume of Wealth, Debt and Taxation have been printed. Some of the subjects treated will require more than a single volume. As compared with the census of 1880, separate reports on the following topics have been omitted:

Cotton production.
Forestry.
Building stones.
Mining laws.

Water power.
Wages, prices, strikes, etc.
Culture and curing of tobacco.
Flour-milling processes.
Cattle, sheep and swine.
Factory system.
Chemical products and salt.
Machine tools and wood-working machinery.

And the following will be new :

Digest of statistics.
Farms, homes and mortgages.
Insurance.
Educational and Church statistics.

There will be special reports or monographs on clay and pottery products, coke and glass, cotton goods, distilled spirits used in arts, electrical apparatus and appliances, manufactured gas, iron and steel, mixed textiles, printing and publishing, salt, ship-building, silk, wool and worsted.

Fifty thousand copies of the Digest and Compendium have been ordered, thirty thousand of the volumes on Population and Agriculture, and ten thousand of each of the other reports and Atlas.

Notwithstanding the very sensible effort made to continue the Census Bureau as a permanent organization, and thereby retain services trained at great cost, the office was abolished by last Congress, and the terms of all employés expire at the end of the year 1893. The records and unfinished work are to be turned over to the Secretary of the Interior, who is authorized to employ a sufficient force, for a period not longer than one year, to complete the publication, that is to say, to the end of the year 1894.

When the question of creating a permanent Census Bureau was before Congress, Mr. Francis A. Walker remarked: "Taking the census is very much like raising an army of volunteers at the beginning of the war. From my own experience I know that you are almost certain to get something else than good work at the start, and by the time the force becomes trained and efficient the work is nearly all completed. The additional expense of such a system is very great. I believe it would be greater than the expense of maintaining a moderate census force, a statistical force through the decade, and there is no question that the results would be very much greater; I won't say more economical, though I believe so. There are two kinds of economy: one of spending less money, and the other of getting more for your money; and the latter kind of economy can be practised to a very high degree by a permanent bureau." And Mr. Thomas Donaldson, of Philadelphia, aptly said that the pay of a superintendent of a *permanent* census bureau would be not so much for what he does as for what he learns not to do.

BOUNDARY SURVEYS.—The Coast and Geodetic Survey has still in hand the survey of the territory adjacent to the boundary line of the United States and Canada between Alaska and British Columbia, and the northwest territory of Canada, with a view to the ascertainment of the facts and data necessary to the permanent delimitation of the boundary line, in accordance with the spirit and intent of the existing treaties in regard to it between Great Britain and Russia, and between the United States and Russia.

A joint commission is engaged in determining the questions affecting the water boundary between the

United States and Mexico. Another commission is marking the boundary line between the United States and Canada in Passamaquoddy Bay, opposite and adjacent to Eastport, Maine.

DEATH VALLEY.—It will be remembered that in 1891 an exploration of this region was made under the direction of Dr. C. Hart Merriam, of the Department of Agriculture, with the co-operation of the United States Geological Survey and the Signal Service. Prof. Harrington, chief of the Weather Bureau (successor of the weather branch of the Signal Service), has already published the meteorological contribution to the results of the exploration.* Dr. Merriam has now ready for the press † his Narrative, and the Scientific Results of the expedition. His collaborators are several naturalists, including Jordan, Gilbert, Fisher, Stearns, Stejneger and Riley. As it has been held that the animal and plant forms of this region are comparatively few, the "results" are looked for with lively interest. It is expected also that the work of the topographer will give greater consistency and exactness to questions of the elevation or depression of the valley.

THE VALUE OF HAWKS AND OWLS.—Dr. Merriam has overwhelmingly demonstrated the importance of an accurate knowledge of the economic status of our common birds and animals. Bulletin No. 3, Division of Ornithology and Mammalogy, Department of Agriculture, prepared under his direction by Dr. A. K. Fisher, is an exposition of the relation to agriculture of the hawks and owls of the United States.

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* Weather Bureau Bulletin, No. 1.

† North American Fauna, Nos. 6 and 7.

The conclusions reached are based on the critical examination by scientific experts of the actual contents of about 2700 stomachs of these birds, and consequently may be fairly regarded as a truthful showing of the normal food of each species. "The result proves that a class of birds commonly looked upon as enemies to the farmer, and indiscriminately destroyed whenever occasion offers, really rank among his best friends, and, with few exceptions, should be preserved and encouraged to take up their abode in the neighborhood of his home."* Dr. Fisher says unflinchingly (1) that owls are among the most beneficial of all birds, inflicting very little damage on the poulterer, and conferring vast benefits upon the farmer. (2) That all hawks, with possibly one or two exceptions, are to some extent beneficial to the farmer. State laws, he says, passed for the destruction of hawks and owls, and offering a bounty for their heads are very effective either for good or evil. One of the counties of Pennsylvania paid out over $5,000 for scalps of "birds of prey." In the light of the foregoing facts it will readily be understood how long a time it will take to replace these birds in case their services are wanted. There is no doubt that this State and others which have passed similar laws have made a serious mistake; for it is indisputable that the opinion about hawks and owls, so widespread and popular, is not well founded. The economic position of these two birds is well summed up in the following paragraph. Speaking of owls, Dr. Fisher says: "Their eyesight, unlike that of hawks, which hunt by day, is by no means so defective by daylight as popularly supposed, but is keenest in the early hours of evening and in early morning. Hunting thus in dim light their food consists largely of those animals which hawks do not trouble at all, or destroy only in small numbers. The work of owls thus supplements that of hawks and materially assists in preventing an undue increase of many obnoxious rodents. Again, though owls are somewhat migratory, they are far less so as a class than hawks, and hence in winter, when the latter have left the northern States for warmer climes, they remain at home and carry on their incessant warfare against injurious rodents."

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* Dr. Merriam.

Of the seventy-three species and sub-species of hawks and owls found in the United States, only *two* (the Sharp-shinned and Cooper's Hawk) need really be taken into account as enemies to agriculture. Of 159 stomachs of the former which were examined, six contained poultry or game birds; ninety-nine, other birds; six, mice; five, insects, and fifty-two were empty. Of the latter, 133 stomachs were examined. Thirty-four contained poultry or game; fifty-two, other birds; eleven, mammals; one, frog; three, lizards; two, insects; and thirty-nine were empty. Over 2,000 stomachs of all the other species were examined and found to contain only 3½ per cent. poultry or game birds. A catalogue of the pests that these farmer's assistants devour includes mice, gophers, shrews, skunks, squirrels, rats, weasels, moles, chipmunks, spiders, adders, centipeds, snakes, grasshoppers, lizards, beetles, dragon flies, frogs, toads, locusts; to which should be added an occasional old hen or a tough chicken.

The habits of some of these hawks and owls are so interesting that I cannot refrain from adding a few notes.

The Marsh Hawk annually destroys vast numbers of mice. Grasshoppers and crickets are particularly sought after by Swainson's Hawk. Dr. Merriam has estimated that at least 200 grasshoppers are consumed daily by one hawk; and in the course of a month a flock of 165 individuals. which is a small estimate of the number actually seen together in various localities feeding upon grasshoppers, will destroy 1,000,000 adult insects—a benefit to agriculture which no farmer can fail to appreciate. The Prairie Falcon follows ground squirrels relentlessly. In the rabbit-infected portions of the West the Great Horned Owl destroys immense numbers of these rodents. The little Screech Owl is indefatigable in its work of destroying mice and insects, and is to be particularly commended for its efforts in destroying the English sparrow. A large proportion of the food of the Barred Owl consists of rats, mice, rabbits and squirrels. In the West the Barn Owl feeds largely on pouched gophers—the most destructive mammals which inhabit this country. In the South it lives on cotton rats, and at other places on the common rat. The red-shouldered hawk,which shares with the red-tailed hawk the odious appellation of "hen hawk," eats everything within reach—mice, birds, snakes, frogs, fish, grasshoppers, centipeds, spiders, crawfish, earth-worms and snails. Hasn't he a right to an occasional chicken?

The twenty-five colored plates from drawings by

Ridgway, which accompany the monograph, afford ample identification of the various species of these predatory birds.

THE SIX NATIONS.—A monograph on the Six Nations, formerly the "League of the Iroquois," has been prepared for the Census Bureau by Thomas Donaldson and General Henry B. Carrington.

The Six Nations of New York comprise the Cayugas, Mohawks (Saint Regis), Oneidas, Onondagas, Senecas and Tuscaroras. Formerly known as the Five Nations, or League of the Iroquois, they became the "Six Nations" in 1715 by the admission of the Tuscarora Indians from North Carolina, and are now located on five reservations in New York and one in Pennsylvania.

It will surprise most readers to learn that the League, since the advent of the European race on the American continent, never had an available fighting force of more than 2500 men. But their fighting capacity was phenomenal, and, coupled with rapidity of movement and power of concentration, gave the impression of a vast number of warriors. "They made peace or war with equal facility, conquering and absorbing tribes, and getting the control and government of the country from the Carolinas to the lakes on the north and the Mississippi on the west. The Mohawk war-whoop was the terror of aboriginal life, and the signal fires of the Iroquois League, illuminating the hills and valleys of the Atlantic coast, meant danger to the outlying tribes"* Mr. Donaldson says that the astonishing fact is presented by the census of 1890 and the statistics of non-resident Iroquois tribes that the League is stronger in 1890 than it was in 1660, when first estimated by competent Europeans. In 1660 it was estimated at 11,000; in 1890 it is 15,870. The reservations of the Six Nations in New York and Pennsylvania comprise 87,967 acres valued at $1,810,699, and "property" valuation at $1,309,493 additional.

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* Donaldson.

The monograph contains an account of the Iroquois League, its territory, government and social customs, and interesting facts concerning its past history, present condition, religion, industries, morals, education, vital statistics, traditions, etc., several ancient and modern maps, and a large number of illustrations.

A SCIENTIFIC CLEARING HOUSE.—There is a Joint Commission, composed of delegates from six of the scientific societies of Washington, viz, the Anthropological, Biological, Chemical, Entomological, National Geographic, and Philosophical. The functions of the Commission are advisory, except that it may execute instructions on general subjects and in special cases from two or more of the societies participating. The Board meets at irregular intervals and forms a very important connecting link between the varied, and not always harmonious, interests of the associations. Col. Garrick Mallery is president and Marcus Baker secretary of the Commission. The latter gentleman has just prepared the fifth edition of the directory of the six associations represented in the "clearing house." Mr. Baker has done this work so often that he does it well. He gives in one list, alphabetically arranged, the customary and full name and the residences of the membership of all the societies. The names of honorary members are not included, only the active resident and non-residents. The greatest increment in membership was in 1892, partly due, however, to the admission of the Entomological Society into the union during that year. The National Geographic Society, which is the youngest of the six organizations, has a much larger membership than any of the others. The summary of names in the directory (active members only) is:

Anthropological,	222
Biological,	195
Chemical,	97
Entomological,	109
Geographic,	682
Philosophical,	250
	1555

One individual, W. J. McGee, has a membership in all the societies. Another, Maj. J. W. Powell, in all but one. Seven hundred and sixty-two reside in Washington and 497 live elsewhere.

The oldest society named in the Directory is the Philosophical Society of Washington; organized March 13, 1871, "for the purpose of free exchange of views on scientific subjects, and the promotion of scientific inquiry among its members." There were 44 original members. The present number is 250. Not incorporated. It has published 11 volumes of *Bulletins*. President, G. Brown Goode. Past presidents have included Simon Newcomb, Asaph Hall, Dr. J. S. Billings, C. E. Dutton, T. C. Mendenhall.

The next oldest organization is the Anthropological Society of Washington; organized February 17, 1879, "to encourage the study of the natural history of man especially with reference to America." The 17 original memberships have increased to 340 It is incorporated, and has published three volumes of *Transactions*, one volume of *Abstract of Transactions*, and 21 numbers of a quarterly journal entitled *The American Anthropologist.* Otis T. Mason is President.

The Biological Society, the third in order, was organized December 3, 1880, "to encourage the study of the biological sciences." There were 45 original members. Present membership, 195. Not incorporated. It has published 7 volumes of *Proceedings.* President, C. V. Riley. Past presidents include Dr. T. N. Gill, G. Brown Goode, W. H. Dall, C. Hart Merriam.

The Chemical Society, the fourth, was organized January 31, 1884, "for the cultivation of chemical sciences pure and applied." There were 31 original members; now 97. Not incorporated. It has published 8 *Bulletins.* President, Fred. P. Dewey.

The Entomological Society, the fifth, was organized February 29, 1884, "to promote the study of entomology in all possible bearings." Original membership, 26. Present membership, 109. Not incorporated. Has published one volume of *Proceedings*, and part of the second. President, C. V. Riley.

The youngest organization, as already remarked, has the largest membership. The National Geographic Society was organized and incorporated January 27, 1888, "for the increase and diffusion of geographic knowledge." The first membership was 165. At the present date it is 682. The Society has published 4 volumes of the *National Geographic Magazine.* President, Gardiner G. Hubbard.

Included in this Directory of active membership are found the names of Cleveland Abbe, Henry Adams, Cyrus Adler, Alexander Agassiz, A. Graham Bell, J. S. Billings, Elliott Coues, Charles P. Daly, E. M. Gallaudet, Theodore Gill, D. C. Gilman, G. Brown Goode, A. W. Greely, Asaph Hall, Thaddeus William Harris, F. A. Hassler, E. S. Holden, George Kennan, S. P. Langley, Garrick Mallery, T. C. Mendenhall, Simon Newcomb, E. C. Pickering, J. W. Powell, Elisée Reclus, S. H. Scudder, D. P. Todd, Warren Upham, F. A. Walker, and Robert De Courcy Ward.

The Microscopical Society of Washington, organized February 7, 1884, 46 members; Women's Anthropological Society of America, 77 members ; and the Geological Society of Washington, founded February 52, 1893, with 108 members, are not yet included in the scientific union. The latter will be in the near future.

The organization of a series of surveys and their final co-ordination into the present U. S. Geological Survey, has made Washington for many years not only the principal centre for geologists of this country, but also one of the principal centres in the world so far as contributions to that branch of science are concerned.

Heretofore the geologists in Washington have presented their communications for local discussion, chiefly before the Philosophical Society, but as the number of communications increased, there was a demand for greater opportunity for the presentation and discussion of geological papers than the Philosophical Society afforded. As a result a new society, called the Geological Society of Washington, was organized.

The journals and bulletins of the various societies appear to furnish sufficient opportunity for the publication of papers read before the Society, so that for the present it will not undertake to publish the papers presented. It will probably issue one bulletin each year, containing the address of the retiring president and such other matters as the council directs.

As this is its first year the list of officers elected is appended:

President, . .	G. D. Walcott.
Vice-Presidents, .	S. F. Emmons, W. H. Holmes.
Treasurer, . .	Arnold Hague.
Secretaries, . .	Whitman Gross, J. S. Diller.

Members at Large of the Council: G. F. Becker, T. M. Chatard, George H. Eldridge, G. K. Gilbert, G. P. Merrill.

THE "AMERICAN UNIVERSITY," incorporated at the last session of Congress, is the Methodist institution which, under the inspiration of Bishop Hurst and others, has recently acquired valuable real estate holdings in Washington. The incorporators include many of the most prominent men to be found in the American clergy and laity of that denomination, and two women—Mrs. John A. Logan and Mrs. Elizabeth J. Somers, a very successful manager of a school for young ladies, located here. The charter provides that two-thirds of the incorporators shall at all times be members of the Methodist Episcopal Church. The privileges granted are very wide—practically unlimited—and there is no limit to the amount of property that may be acquired by the corporation.

COMMANDER TANNER.—All those who are acquainted with the splendid record of Lieut. Commander Z. L. Tanner in marine exploration will be delighted to learn of his promotion to be Commander in the Navy.

DR. GEORGE VASEY, Botanist to the Department of Agriculture, and for many years connected with that institution, died recently in this city at the age of 72. Dr. Vasey was probably the best authority on American grapes, and contributed largely to the literature of the Department with which he was many years connected, and to the periodical scientific literature of the country. His best known works are "Grasses of the Southwest," "Grasses of the United States," "Grasses of the Arid Regions," and "Grasses of the Pacific Slope, including Alaska."

THE JERUSALEM RAILROAD.—The first railroad ever built in Palestine and Syria was recently opened. Much popular interest was manifested on the occasion, and the ancient city is said to have showed a little of the life and bustle which characterize cities in the western world.

The road is fifty-three miles long and lies between Jaffa (or Joppa), the seaport of Palestine on the Mediterranean, and Jerusalem, and cost $2,000,000. The ties, part of the rails and coaches came from France.

The engines (5) were made in Philadelphia by the Baldwin Locomotive Works. Coal is brought from Cardiff and from Belgium. The price paid for the Jerusalem station, which is a mile from the city, indicates that speculation in "suburban" lots is not confined to the western hemisphere. Twenty-five thousand dollars were paid for about eight acres of land, which a few years ago sold at one dollar per acre. The principal owners of the road reside in Paris, where are also the headquarters of the company. The price paid for labor in construction was about one-third the rates prevailing in this country. The time-table calls for three hours and a half between the terminals, and the fare is $2.50—about five cents per mile. As Consul Merrill remarks, "The opening of such a road in this country is an event of more than ordinary interest when one considers the history of this land and its backwardness in all that pertains to modern and material civilization."

The American and British consuls at Jerusalem have been investigating the exaggerated estimates that are widely circulated of the number of Jews now in the Holy Land. As it is continued to be asserted in print that there are 100,000 to 150,000 Jews in Palestine and 50,000 in Jerusalem alone, when the entire population of that city does not amount to the figure last named, it is necessary to reaffirm the results of these consuls' investigations, namely, "that 42,000 or 43,000 represent pretty nearly the Jews now in Palestine," and that the number in Jerusalem cannot be much over 25,000 and must certainly be considerably less than 30,000.

Transient Americans to the number of four hundred and fifty visited Palestine in 1892. This is about forty per cent. of all the travellers that have been recorded as arriving in that year. "Pilgrims" are not reckoned as tourists; of the former class there are from 5000 to 10,000 annually.

The only systematic exploration that has been carried on recently has been done by an American acting for the Palestine Exploration Fund—an English society.

STRAITS SETTLEMENTS.—According to a recent census of the Straits Settlements the population of that region is ascertained to be ,137,970. Americans do not go there to engage in trade, there being less than 20 in the whole population, and the bulk of these are teachers in an Anglo-Chinese school. The United States consular agent at Penang is the only American engaged in business, although our interests in that region are greater than those of all other nations put together, with one possible exception. H.